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ABSTRACT

The progress of sixth-graders in elementary and middle schools was compared in terms of achievement test scores, attendance, discipline, and grade point average. Three groups of sixth-graders from the Austin schools were examined: (1) 1987-88 sixth-graders for 3 years (grades 6, 7, and 8); (2) 1988-89 sixth-graders for 2 years (grades 6 and 7); and (3) 1989-90 sixth-graders for 1 year. When achievement, as measured by the Iowa Tests of Basic Skills, was examined, the middle school transition (grade 5 to grade 6) seemed to be smoother than the junior high school transition (grade 6 to grade 7). In 1987-88, elementary school sixth-graders (ESSGs) generally performed better on achievement tests than did middle school sixth-graders (MSSGs); after 1987-88, there has been no difference between the performance of ESSGs and MSSGs on achievement tests. When ESSGs reach the seventh grade, they do not perform as well on achievement tests as do seventh-graders who attended the sixth grade in middle schools. By grade 8, there was no difference between achievement gains of students in middle schools and junior high schools. Middle schools disciplined students at higher rates and had slightly lower attendance rates than did elementary schools. During the period from grade 6 to grade 8, the achievement gap between high and low achievers became wider in both junior high and middle schools. These findings indicate the need for vigilance in assisting students to make the necessary social and cognitive transitions from elementary to middle schools. Ten figures present study data. (SLD)

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Sixth Graders in Elementary and Middle Schools: A Longitudinal Study

July, 1990

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Sixth Graders in Elementary and Middle Schools: A Longitudinal Comparison

EXECUTIVE SUMMARY

AUTHOR: Vicente Paredes

Program Description

In 1987-88 AISD replaced most junior high schools with middle schools. Middle schools include grades 6-8 and focus upon helping students through the transition from childhood to early adolescence. In 1989-90 about 17% of sixth grade students remained on an elementary school campus.

This study compares the progress of elementary school sixth graders and middle school sixth graders in terms of achievement test scores, attendance, discipline, and grade point average.

Three groups of elementary and middle school sixth graders were examined:

- 1987-88 sixth graders for three years (grades 6, 7, and 8),
- 1988-89 sixth graders for two years (grades 6 and 7), and
- 1989-90 sixth graders for one year.

Major Findings

Making the transition from elementary to secondary schools is difficult whether it occurs at grade 6 to a middle school or at grade 7 to a junior high. However, after three years of grade 6-8 middle school implementation, there appears to be a smoother transition, in terms of learning, into a middle school than into a grade 7-8 junior high school. By the end of grade 8, there is no difference between achievement gains of students in middle schools and junior high schools. On the other hand, middle schools discipline students at higher rates and display lower attendance rates than junior high schools.

- The first year of middle schools in AISD (1987-88), elementary sixth graders performed better, in general, on achievement tests than did middle school sixth graders.
- After 1987-88, there has been no difference between elementary and middle school sixth graders' performance on achievement tests.
- When elementary sixth graders reach seventh grade, they do not perform as well on achievement tests in relation to seventh graders who attended sixth grade in a middle school.
- Upon reaching eighth grade, the difference between elementary and middle school groups on achievement tests is minimal.
- During the grades 6-8, the achievement gap between high and low achievers becomes wider in both junior high and middle schools.
- Results indicate higher discipline rates and lower attendance rates for middle school students compared to elementary school students. This points to a need for continued vigilance in assisting students to make the necessary social, as well as cognitive, transition from elementary to middle school.

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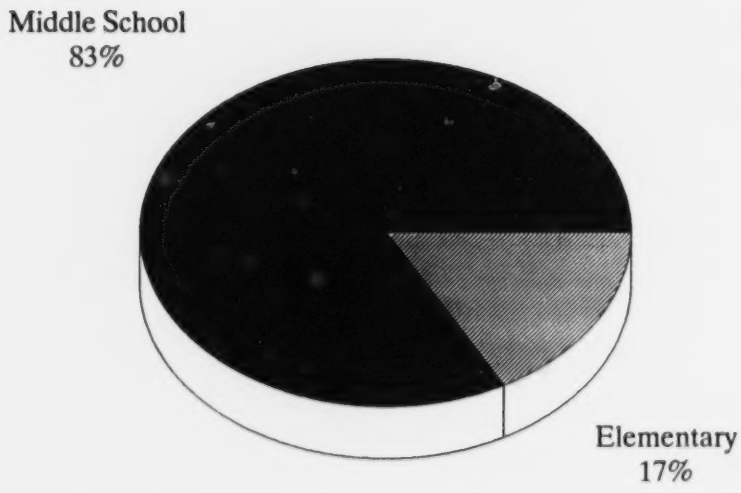
INTRODUCTION

In 1987-88 the Austin Independent School District placed about 85% of its sixth graders on campuses that formerly had housed seventh and eighth grade only. As of 1989-90, 83% of sixth graders attend a middle school. Sixth graders not on a middle school campus attend elementary schools.

Elementary schools are characterized by self-contained classes. Middle schools utilize interdisciplinary team teaching and semi-departmentalized block scheduling. This is meant to serve in part as a transition to the fully departamentalized structure of secondary education. See Sixth Graders in Middle Schools: A First Look (ORE Publication No. 87.43) for more information concerning the middle school concept and its history.

SIXTH GRADERS IN AISD, 1989-90



RATIONALE

This study addresses some of the concerns that were raised when the implementation of middle schools in Austin was proposed. Issues of achievement, as well as discipline and attendance of sixth-grade students are addressed. Parent and student attitudes toward middle schools are not addressed here, but are addressed in ORE Publication No. 87.43, Sixth Graders in Middle Schools: A First Look. This study also takes into account the concern that high, middle, and low achievers might be affected in different ways by elementary and middle school environments.

Some key questions addressed are:

(1) Is there a difference in sixth graders' academic progress and performance by type of campus attended?

(2) Once students reach the seventh grade, is there a difference in academic progress and performance by type of campus attended in the sixth grade?

(3) Upon reaching eighth grade, is there a difference in academic performance and progress by type of campus attended in the sixth grade?

(4) Are the results for each grade level and campus type consistent across the three years of the study?

(5) Is there an interaction between the previous achievement of students and the type of sixth-grade campus they experience?

MIDDLE SCHOOLS IN AISD

Middle schools in AISD focus upon assisting early adolescents in the transition from childhood dependence to adult independence. Academic as well as social factors involved in student progress are addressed by the middle school structure. In the past, AISD junior high school students experienced relatively greater changes in the transition from their elementary school environment. AISD middle schools retain the child-centered approach characteristic of elementary schools while expanding subject and course offerings.

An interdisciplinary team approach is used. Students and teachers are assigned to learning communities. Teachers plan instruction in groups, attempting to integrate the curriculum across disciplines and subjects. Basic skills are not taught in isolation. Instruction is broad based with opportunities for enrichment.

Students are assigned to "advisory" periods. The teacher-advisor is the personal contact for that small group of students. The advisory teacher monitors the academic and social development of the students. The teacher also acts as a first contact with parents when concerns not specific to a particular course arise.

The team of teachers can rearrange students' schedules within the community to meet individual needs. Blocks of instructional time may be created for particular units of instruction or activities. This departure from standard time periods may involve all or part of the team members.

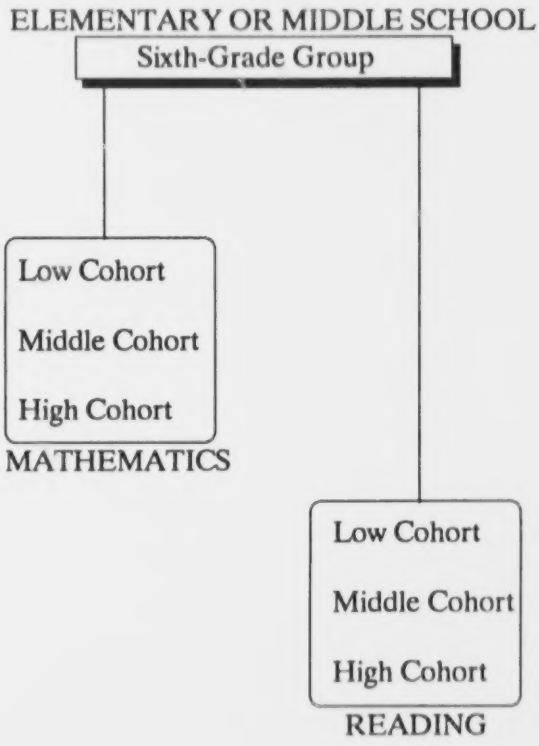
Besides the core courses of English, language arts, mathemetics, science, and social studies, elective programs are also included in the curriculum. These include classes such as instrumental music, choir, fine arts, languages, and vocational programs.

DESCRIPTION OF THE STUDY

Cohorts

A cohort study was initiated in 1987-88. A cohort is a set of individuals that remains intact, except for usual attrition, throughout the course of the longitudinal study. Each student was assigned to two cohorts based upon fifth-grade Iowa Tests of Basic Skills grade equivalent scores.

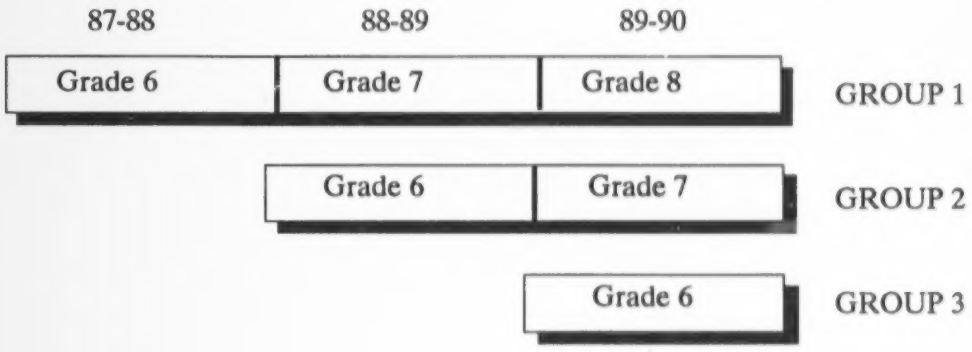
For each year of this three-year study, a new group of sixth-grade students was divided into twelve cohorts (6 elementary cohorts and 6 middle school cohorts) for a total of 36 cohorts over the course of the study. Students were assigned to a low, middle, or high cohort for ITBS reading (below 5.3, 5.4 to 6.7, or above 6.8, respectively) and a low, middle, or high cohort for ITBS mathematics (below 5.6, 5.7 to 6.7, or above 6.8, respectively).



The performance of each group was tracked separately for the course of the study. Also, the demographic characteristics of corresponding elementary and middle school cohorts were examined in order to ensure that they are similar. Low, middle, and high cohorts are not demographically similar.

Information was gathered for 1987-88 sixth graders for three years, 1988-89 sixth graders for two years, and 1989-90 sixth graders for one year. Data concerning attendance, discipline, and grade point average were recorded. The GENeric Evaluation SYStem (GENESYS) was used to produce data for each of the 18 groups. See Evaluation Methodology for the 90's: A GENeric Evaluation SYStem (GENESYS) (ORE Publication No. 89.16) for more about this computer program.

GENESYS



In addition, data from AISD's Report on School Effectiveness (ROSE) were used. ROSE is a computer program designed to provide each campus, program, or group of interest with an estimation of how that group gained on ITBS mathematics and reading scores from one year to the next in relation to the rest of the District. ROSE results include statistical tests to determine if gain scores are significantly different from zero. This allows an indirect statistical comparison of the groups. The rest of the statistics are descriptive and provide a qualitative comparison of middle school versus elementary school outcomes.

ROSE

RESULTS

ROSE Results
Figures 1 & 2

ROSE results indicate whether a cohort is performing above (+), at (=), or below (-) predicted levels on the ITBS. **After the first year of middle schools in AISD, middle school sixth graders seem unaffected by the transition to middle school, except for possibly low achievers.** The first year that middle schools existed in AISD (group 1) , elementary students outperformed middle school 6th graders. This was especially so for high reading and high and middle mathematics students. The second year of middle schools (group 2) , there was less of a difference between elementary and middle school sixth graders, with middle school high mathematics students performing above predicted levels. The trend toward equalization continued in the third year (group 3), but middle school low reading and middle school low mathematics students both perform below predicted levels.

Looking at seventh grade, **a gap develops between seventh graders who are now in their first year of junior high (elementary sixth grade cohorts) and seventh graders who are in their second year of middle school (middle school sixth grade cohorts)** with second year middle school students doing better and first year junior high school students doing worse. Middle school cohorts that outperform elementary cohorts include high reading group 1, high reading group 2, middle reading group 1, high mathematics group 1, high mathematics group 2, and middle mathematics group 2. The exceptions to this trend are low mathematics and low reading in 88-89 (group 2) in which elementary cohorts outperform middle school cohorts.

ROSE Results across time
Figure 7

ROSE results of the cohorts across time are shown in Figure 7. Group 1 is the only group for which we have three years of longitudinal data. Results for this group indicate that **by the eighth grade any group differences between elementary cohorts and middle school cohorts are minimal.**

Also evident is the widening gap between high and low achievers. High-achieving sixth graders perform above predicted levels, and low-achieving sixth graders perform below predicted levels by the time they reach eighth grade. This is true for both middle school and elementary cohorts.

Attendance
Figure 3

Comparisons of elementary and middle school attendance at the sixth-grade level are mixed (e.g., comparing elementary high mathematics with middle school high mathematics cohorts). An early advantage for elementary school students appears but disappears by the eighth grade. Elementary averages at the sixth-grade level are higher than middle school averages in 22 of 36 comparisons. At the seventh-grade level elementary cohort attendance is better than middle school cohorts in 19 of 24 comparisons. But at the eighth-grade level middle school cohorts are higher in 9 of 12 comparisons.

Discipline
Figure 4

Discipline incidents at the sixth-grade level were higher for the middle school cohorts in all 36 comparisons. This trend continues with middle school cohorts having more discipline incidents than elementary cohorts at the seventh-grade level (15 of 24 comparisons) and eighth-grade level (9 of 12 comparisons) as well. These results might be most indicative of a difference in administrative approach between elementary, junior high, and middle schools.

GPA
Figure 5

Because numeric grades are not reported centrally in an automated system in elementary schools, as they are in secondary schools, no comparisons involving Grade Point Average can be made at the sixth-grade level. GPA results are about even at the seventh-grade level with middle school cohorts higher in 14 of 24 comparisons. But in the eighth grade, the elementary cohorts are higher in 9 of 12 comparisons. See also Figure 6 for results concerning average number of F's per student.

CONCLUSIONS

One of the purposes of this study is to examine the transition that students make in grades 6-8 and to compare the relative merits of two ways of making that transition. This study includes three years of data concerning the transition from elementary fifth grade to middle school sixth grade, and two years of data concerning the transition from elementary sixth grade to junior high seventh grade.

When looking at ITBS achievement, the middle school transition (grade 5 to grade 6) seems to be more favorable than the junior high (grade 6 to grade 7) transition. The first year that middle schools in AISD existed, high-achieving middle school sixth graders seemed to perform, in general, below the levels of elementary sixth graders. But the following two years this result did not hold. On the other hand, elementary sixth graders moving to seventh grade seemed to perform below the levels of middle school seventh graders the last two years of this study.

The results from the one group that has reached eighth grade show that corresponding elementary and middle school cohorts (high, middle, or low) become more equal in terms of achievement. But also, the gap between high and low achievers has grown even wider by the time they reach eighth grade, no matter which type of transition was made.

Middle schools in AISD seem to offer advantages in terms of achievement, probably as a result of a more challenging curriculum. But results of this study show increased discipline incidents and decreased attendance rates for middle school cohorts. The discipline results could be a result more of differences in administrative policy than of differences in student behavior. However, these results might also point to a need for continued vigilance in assisting students to make the necessary social as well as cognitive transitions during these grades.

The decision to implement middle schools was motivated by national trends, a desire to make the elementary-to-secondary transition less difficult, and the economic need to increase the availability of classrooms for meeting the 22 student enrollment cap in grades K-4 classrooms. AISD appears to have made a reasonable and prudent decision to move from a junior high system to one including middle schools.

FIGURE 1

6th Grade: ROSE READING

	MIDDLE SCHOOL Rose residual	above/below prediction	(N)	ELEMENTARY Rose residual	above/below prediction	(N)
89-90 (GROUP 3)						
low	-.06	-	(977)	-.02	=	(172)
middle	.03	=	(854)	-.03	=	(157)
high	.06	=	(761)	.03	=	(201)
88-89 (GROUP 2)						
low	-.04	=	(751)	-.10	=	(119)
middle	.03	=	(888)	-.02	=	(119)
high	.03	=	(767)	.05	=	(207)
87-88 (GROUP 1)						
low	-0.3	=	(777)	.01	=	(131)
middle	.02	=	(787)	.10	=	(108)
high	-.09	-	(718)	.37	+	(176)

7th Grade: ROSE READING

	MIDDLE SCHOOL Rose residual	above/below prediction (N)		ELEMENTARY Rose residual	above/below prediction (N)	
89-90 (GROUP 2)						
low	-.19	-	(614)	-.54	-	(96)
middle	.05	=	(759)	-.07	=	(103)
high	.23	+	(685)	-.01	=	(184)
88-89 (GROUP 1)						
low	-.13	-	(573)	-.08	=	(98)
middle	-.04	=	(651)	-.26	-	(92)
high	.22	+	(636)	-.23	-	(154)

8th Grade: ROSE READING

	MIDDLE SCHOOL Rose residual	above/below prediction (N)		ELEMENTARY Rose residual	above/below prediction (N)	
89-90 (GROUP 1)						
low	-.29	-	(510)	-.24	-	(90)
middle	-.00	=	(598)	.22	=	(81)
high	.16	+	(584)	.13	=	(141)

FIGURE 2

6th Grade: ROSE MATHEMATICS

	MIDDLE SCHOOL			ELEMENTARY		
	Rose residual	above/below prediction	(N)	Rose residual	above/below prediction	(N)
89-90 (GROUP 3)						
low	-.02	=	(977)	.02	=	(162)
middle	.02	=	(875)	.00	=	(170)
high	.04	=	(710)	-.01	=	(198)
88-89 (GROUP 2)						
low	-.04	=	(816)	.07	=	(125)
middle	-.02	=	(822)	.11	=	(116)
high	.06	+	(766)	-.08	=	(205)
87-88 (GROUP 1)						
low	0.0	=	(796)	-.01	=	(134)
middle	-.02	=	(733)	.13	+	(128)
high	-.05	-	(741)	.34	+	(153)

7th Grade: ROSE MATHEMATICS

	MIDDLE SCHOOL Rose residual	above/below prediction	(N)	ELEMENTARY Rose residual	above/below prediction	(N)
89-90 (GROUP 2)						
low	-.10	-	(647)	-.24	-	(102)
middle	-.00	=	(696)	-.14	-	(101)
high	.16	+	(694)	.05	=	(182)
88-89 (GROUP 1)						
low	-.13	-	(592)	-.09	=	(103)
middle	-.02	=	(602)	-.11	=	(112)
high	.22	+	(656)	-.25	-	(131)

8th Grade: ROSE MATHEMATICS

	MIDDLE SCHOOL Rose residual	above/below prediction	(N)	ELEMENTARY Rose residual	above/below prediction	(N)
89-90 (GROUP 1)						
low	-.13	-	(515)	-.19	-	(94)
middle	.04	=	(542)	-.07	=	(99)
high	.06	+	(606)	.21	+	(122)

FIGURE 3

6th Grade: Attendance

			MIDDLE SCHOOL		ELEMENTARY	
			Fall	Spring	Fall	Spring
89-90	**(GROUP 3)**					
	low	math	95.8	94.5	96.7	96.0
		reading	95.9	94.2	96.2	95.8
	middle	math	96.8	95.5	96.6	96.3
		reading	96.6	95.5	97.3	96.4
	high	math	97.5	97.0	97.4	96.9
		reading	97.3	96.7	96.9	96.6
88-89	**(GROUP 2)**					
	low	math	95.5	93.5	96.5	95.4
		reading	95.6	93.4	96.5	95.4
	middle	math	96.2	94.4	96.7	95.9
		reading	96.4	94.7	97.5	96.0
	high	math	96.9	95.8	97.5	95.9
		reading	96.7	95.4	97.1	95.8
87-88	**(GROUP 1)**					
	low	math	95.8	94.1	96.8	94.9
		reading	95.9	94.1	97.1	95.6
	middle	math	96.6	95.0	96.5	94.9
		reading	96.6	95.1	96.4	94.7
	high	math	97.1	96.0	97.1	95.8
		reading	97.1	95.9	96.8	95.3

7th Grade: Attendance

			MIDDLE SCHOOL		ELEMENTARY	
			Fall	Spring	Fall	Spring
89-90	**(GROUP 2)**					
	low	math	94.2	92.3	94.8	93.4
		reading	93.9	91.7	94.4	92.4
	middle	math	95.7	94.3	95.7	94.1
		reading	95.7	94.4	96.1	94.8
	high	math	96.9	95.8	97.5	96.8
		reading	96.8	95.8	97.5	96.9
88-89	**(GROUP 1)**					
	low	math	94.1	92.7	95.5	92.5
		reading	93.8	92.3	95.6	92.6
	middle	math	95.4	93.6	95.7	94.1
		reading	95.6	93.9	95.5	93.9
	high	math	96.4	95.2	97.4	96.1
		reading	96.4	95.2	97.2	95.9

8th Grade: Attendance

			MIDDLE SCHOOL		ELEMENTARY	
			Fall	Spring	Fall	Spring
89-90	**(GROUP 1)**					
	low	math	93.3	90.1	92.1	87.8
		reading	92.2	89.4	92.2	87.1
	middle	math	94.4	92.9	93.5	90.7
		reading	95.2	93.2	92.9	90.6
	high	math	96.4	95.5	96.6	95.7
		reading	96.7	95.8	96.4	95.3

FIGURE 4

6th Grade: Discipline

(% of students who have at least one discipline incident)

			MIDDLE SCHOOL		ELEMENTARY	
			Fall	Spring	Fall	Spring
89-90 (GROUP 3)						
	low	math	5.2	7.3	0.0	3.1
		reading	5.7	7.1	0.0	2.3
	middle	math	2.5	2.5	0.0	0.6
		reading	2.2	3.4	0.0	1.3
	high	math	0.6	1.3	0.0	0.0
		reading	0.7	1.2	0.0	0.0
88-89 (GROUP 2)						
	low	math	4.4	7.5	1.6	4.0
		reading	4.7	7.3	0.8	4.2
	middle	math	2.7	3.6	0.0	0.0
		reading	2.7	3.9	0.8	0.0
	high	math	0.5	2.0	0.0	0.5
		reading	0.5	2.0	0.0	0.5
87-88 (GROUP 1)						
	low	math	7.0	7.0	0.0	0.0
		reading	7.2	7.1	0.8	0.0
	middle	math	3.1	3.0	0.0	1.6
		reading	2.9	2.9	0.0	0.9
	high	math	1.1	0.7	0.7	0.0
		reading	1.5	1.0	0.0	0.6

7th Grade: Discipline

			MIDDLE SCHOOL		ELEMENTARY	
			Fall	Spring	Fall	Spring
89-90	**(GROUP 2)**					
	low	math	7.4	7.7	6.4	4.0
		reading	7.5	6.9	6.7	5.9
	middle	math	3.2	4.0	7.8	9.5
		reading	3.3	5.0	6.7	9.2
	high	math	1.2	1.7	1.0	2.0
		reading	1.4	1.7	1.4	1.0
88-89	**(GROUP 1)**					
	low	math	8.0	8.2	6.7	6.0
		reading	7.6	9.9	6.1	7.6
	middle	math	2.0	4.9	0.8	3.9
		reading	2.9	3.6	2.8	2.8
	high	math	0.8	2.2	1.3	0.0
		reading	0.6	2.1	0.6	0.0

8th Grade: Discipline

			MIDDLE SCHOOL		ELEMENTARY	
			Fall	Spring	Fall	Spring
89-90	**(GROUP 1)**					
	low	math	9.4	8.5	10.4	8.2
		reading	10.6	8.4	10.7	8.4
	middle	math	5.0	3.8	3.9	0.8
		reading	3.8	5.5	3.7	0.9
	high	math	1.6	2.0	1.3	0.7
		reading	1.8	0.7	1.7	0.6

FIGURE 5

6th Grade: Grade Point Average

			MIDDLE SCHOOL		ELEMENTARY	
			Fall	Spring	Fall	Spring
89-90	**(GROUP 3)**					
	low	math	81.5	81.1		
		reading	81.5	80.9		
	middle	math	87.4	86.7		
		reading	87.2	86.5	N/A	
	high	math	91.1	90.6		
		reading	90.4	90.2		
88-89	**(GROUP 2)**					
	low	math	79.4	78.1		
		reading	79.4	78.2		
	middle	math	84.9	84.1		
		reading	84.8	84.0		
	high	math	89.9	89.3	N/A	
		reading	89.5	88.8		
87-88	**(GROUP 1)**					
	low	math	79.8	79.5		
		reading	79.9	79.6		
	middle	math	84.5	83.9		
		reading	84.6	84.1		
	high	math	88.9	88.3	N/A	
		reading	88.4	87.8		

7th Grade: Grade Point Average

			MIDDLE SCHOOL		ELEMENTARY	
			Fall	Spring	Fall	Spring
89-90 (GROUP 2)						
	low	math	79.5	79.2	79.0	78.4
		reading	79.8	79.5	78.8	78.1
	middle	math	84.4	83.8	84.0	84.0
		reading	84.3	83.7	84.0	83.9
	high	math	88.8	88.3	90.6	90.0
		reading	88.2	87.7	90.5	90.0
88-89 (GROUP 1)						
	low	math	77.7	76.8	75.9	75.8
		reading	77.9	77.1	76.4	76.4
	middle	math	83.4	82.2	82.8	81.9
		reading	84.0	82.4	82.5	81.0
	high	math	89.1	88.1	89.4	89.6
		reading	88.4	87.5	88.4	88.6

8th Grade: Grade Point Average

			MIDDLE SCHOOL		ELEMENTARY	
			Fall	Spring	Fall	Spring
89-90 (GROUP 1)						
	low	math	80.1	80.6	80.9	81.4
		reading	80.2	80.8	80.6	81.4
	middle	math	84.8	84.5	84.7	84.6
		reading	85.1	85.0	84.6	84.1
	high	math	89.6	89.1	90.4	89.7
		reading	89.1	88.5	89.8	89.2

FIGURE 6

6th Grade: F's

(average # of F's per student)

Note: AISD is in the process of converting from the reporting of F's to the reporting of passing grades. At the time of this report, passing grade results are not yet available. Therefore, results concerning number of F's are provided here.

			MIDDLE SCHOOL		ELEMENTARY	
			Fall	Spring	Fall	Spring
89-90	**(GROUP 3)**					
	low	math	.64	.68		
		reading	.64	.73		
	middle	math	.12	.20		
		reading	.17	.23		N/A
	high	math	.05	.07		
		reading	.04	.06		
88-89	**(GROUP 2)**					
	low	math	.69	.92		
		reading	.69	.93		
	middle	math	.20	.33		
		reading	.22	.31		N/A
	high	math	.02	.06		
		reading	.05	.12		
87-88	**(GROUP 1)**					
	low	math	.62	.70		
		reading	.62	.70		
	middle	math	.22	.25		
		reading	.22	.26		N/A
	high	math	.05	.07		
		reading	.08	.09		

7th Grade: F's

			MIDDLE SCHOOL		ELEMENTARY	
			Fall	Spring	Fall	Spring
89-90	**(GROUP 2)**					
	low	math	.92	.94	1.16	1.14
		reading	.91	.92	1.16	1.16
	middle	math	.41	.47	.52	.66
		reading	.39	.49	.62	.71
	high	math	.14	.19	.13	.16
		reading	.22	.25	.11	.15
88-89	**(GROUP 1)**					
	low	math	1.17	1.25	1.48	1.49
		reading	1.16	1.21	1.40	1.38
	middle	math	.53	.62	.57	.61
		reading	.48	.61	.70	.80
	high	math	.10	.18	.16	.13
		reading	.16	.22	.22	.18

8th Grade: F's

			MIDDLE SCHOOL		ELEMENTARY	
			Fall	Spring	Fall	Spring
89-90	**(GROUP 1)**					
	low	math	.89	.84	.76	.78
		reading	.91	.83	.72	.72
	middle	math	.43	.45	.43	.39
		reading	.40	.41	.55	.54
	high	math	.09	.18	.14	.19
		reading	.11	.22	.15	.18

FIGURE 7

(+) above expected level (=) achieved expected level (-) below expected level

READING

			6th	7th	8th
GROUP 3	Elem.	low	=		
		middle	=		
		high	=		
	M.S.	low	-		
		middle	=		
		high	=		
GROUP 2	Elem.	low	=	-	
		middle	=	=	
		high	=	=	
	M.S.	low	=	-	
		middle	=	=	
		high	=	+	
GROUP 1	Elem.	low	=	=	-
		middle	=	-	=
		high	+	-	=
	M.S.	low	=	-	-
		middle	=	=	=
		high	-	+	+

MATHEMATICS

			6th	7th	8th
GROUP 3	Elem.	low	=		
		middle	=		
		high	=		
	M.S.	low	=		
		middle	=		
		high	=		
GROUP 2	Elem.	low	=	-	
		middle	=	-	
		high	=	=	
	M.S.	low	=	-	
		middle	=	=	
		high	+	+	
GROUP 1	Elem.	low	=	=	-
		middle	+	=	=
		high	+	-	+
	M.S.	low	=	-	-
		middle	=	=	=
		high	-	+	+

DEFINITIONS

ROSE

Using data from the District as a whole, a multiple regression equation is developed. Variables used as predictors in the equation are the previous year's test score, sex, ethnicity, whether or not the student is a transfer student, pupil-teacher ratio, a low-income status indicator, and a family-income indicator. This prediction equation is used to calculate a predicted gain score for each student while taking into account or controlling for the variables mentioned above.

The difference between the predicted score and the actual score (the residual score) for each student in the analysis is calculated. This is an indication of whether the student's gain in score from one year to the next is above or below the score predicted for a student with similar demographic characteristics and initial test score.

The average difference (ROSE residual) for a particular group of interest is taken as an indication of how the group of interest gained or did not gain in ITBS scores in relation to the predicted gain. If this average difference is not significantly different from zero, the group is performing as predicted. If the average difference is significantly above or below zero, the group is performing above or below predicted levels.

Attendance

Attendance for each student is the number of days attended divided by the number of days enrolled. Group results are the average of the data for each student.

Discipline

Serious discipline incidents are defined in AISD as incidents that result in corporal punishment, suspension, or expulsion. In-school suspension and detention are not included in this definition. Group results are the percentage of students involved in a serious discipline incident during the school year.

Grades

Grade Point Average (GPA) for each student is the average of the numerical grades (range of 1 to 100) assigned. This includes failing grades but does not include courses in which a no grade was assigned. Also, these averages do not include weighting for honors courses. Group results are the average of each student's grade point average.

The number of F's is an average of the number of F's assigned per student.

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